REMARKS:

Applicant has carefully studied the nonfinal Examiner's Action and all references cited therein. The amendment appearing above and these explanatory remarks are believed to be fully responsive to the Action. Accordingly, this important patent application is now believed to be in condition for allowance.

Applicant responds to the outstanding Action by centered headings that correspond to the centered headings employed by the Office, to ensure full response on the merits to each finding of the Office.

**Information Disclosure Statement**

The Office has indicated that a proper information disclosure statement was not filed. Applicant submits a proper information disclosure statement with this amendment.

**Drawings**

The Office has objected to the drawings as failing to comply with 37 CFR 1.84(p)(5) because they do not include reference to "10" as mentioned in the description. An Annotated Sheet Showing Changes to Fig. 1 and a Replacement Sheet are attached.

**Claim Rejections – 35 U.S.C. § 103**

Applicant acknowledges the quotation of 35 U.S.C § 103(a).

Claims 1-23 stand rejected under 35 U.S.C § 103(a) as being unpatentable over Das et al. (U.S. Patent No. 5,835,520) in view of Lister (WO 97/08792).

Regarding claim 1, the Office states that Das discloses an excimer laser comprising a discharge chamber filled with a gas mixture at least including a halogen containing molecular species and a buffer gas, a discharge circuit, a plurality of electrodes for energizing the gas mixture, and a resonant cavity including the discharge chamber for generating a laser beam. The Office continues, that while Das does not disclose the intra-cavity homogenizer as claimed, Lister teaches an optical system where first and second bi-prisms, 12 and 13, are disposed at opposite ends of a cavity and having an amplifier 14 therebetween. The Office contends that it

would have been obvious to one skilled in the art to utilize the bi-prisms in Das's system, thus making the discharge chamber the optical amplifier that is between the bi-prisms, as the use of this system will avoid the unreliability and alignment problems associated with other systems, as taught by Lister. The Office further states that when the bi-prisms are placed in Das's system, they will be located such that optical axes of the bi-prisms are substantially parallel to the laser beam axis.

Applicant respectfully traverses the finding of the Office. The system in accordance with the present invention discloses and claims an intracavity homogenizer. An excimer laser homogenizer as known in the art produces a homogeneous beam from a non-uniform excimer laser beam. An excimer produces a gaussian beam profile in a least one axis. The homogenizer takes in a gaussian beam input and outputs a homogeneous flat-top beam profile. As is known in the art, a homogenizer splits the beam up into many smaller beams and overlaps them later in such a way as to produce a flat top profile. Temporal and spatial overlapping of the beams results in coupling. Lister does not describe a system for use as a homogenizer. Lister describes with reference to pg. 1, a system whereby a beam of light traverses along at least two paths having a common point of intersection, each of the paths describing a different azimuth angle with respect to a plane of symmetry containing the axis of the optical system. As such, the beam of light described by Lister will pass repeatedly through the same spatial, but not temporal, point in the optical system along various paths with the light following any one of the paths remaining substantially uncoupled from the light following any other of the paths. With reference to Fig. 2 and 3 and pg. 4, lines 18-20, Lister describes a system wherein the beam path through the optical system at no time extends along the axis X and only intersects the axis at the common point of intersection Z. Passing the beam of light repeatedly through an amplifier guided by a method to prevent coupling is not equivalent to a method to provide a homogeneous flat-top beam profile. Accordingly, the optical system described by Lister is not a homogenizer and cannot be operated as a homogenizer to modify the intensity profile of a beam because as described above, the beam is incident on only one facet of the bi-prism surface on any given pass. Additionally, Lister states with specific reference to pg. 1, line 8, that any tendency for the beam on different passes to become coupled must be minimized. Lister additionally states at pg. 1, line 27, that the beam of light along any path remains substantially uncoupled from the light following any other of the paths. Providing a homogenizer, as claimed in the present invention, requires coupling of the

light beam as it travels along various paths. Therefore, Lister teaches away from the present invention by describing a multiple pass optical system that minimizes any tendency for a beam on different passes to become coupled.

Additionally, the configuration of the system described by Lister is limited in the number of passes attainable through the amplifier. For Lister, the number of passes is a function of the number and configuration of the bi-prisms and reflective surfaces. This configuration is not equivalent to a laser resonator and the incorporation of the optical system described by Lister into the Das system would not provide a resonant cavity. Das describes the use of prisms in a resonator at col. 4, lines 27-29. The system described by Das includes 3 prisms, a tuning mirror and an eschelle grating for the purpose of spectral narrowing. Das describes the incorporation of dispersive optical elements, such as prisms, into the resonator for the purpose of spectral line narrowing. This is not equivalent to providing an intracavity homogenizer within a resonant cavity as disclosed and claimed by the present invention. Additionally, the combination of the Lister optical system and the Das laser would not result in the present invention. The present invention claims the use of an intracavity homogenizer for homogenizing an intensity profile of the laser beam, thereby resulting in a homogenizing laser beam output. By contrast, combining the Lister optical system and the Das laser would result in a beam that is not homogeneous. As described by Lister at pg. 3, lines 21-25, the beam between the double prisms and the point of intersection are at a fixed angle to the optical axis of the system and in consequence the paths lie on the surface of a cone, the apex of which is the intersection. The points of the intersection of the beam with each of the double bi-prisms describe the apexes of an octagon. As such, the output of the Lister optical system in combination with the Das laser would be a laser beam having a "doughnut" shape, which is not equivalent to a homogeneous intensity profile as described and claimed by the present invention. As such, the line of development flowing from the reference's disclosure would not be productive of the result sought by the applicant and therefore, it would not be obvious to insert the optical system taught by Lister into the system of Das.

In summary, the optical system described by Lister is not equivalent to the intracavity homogenizer as disclosed and claimed by the present invention. Additionally, motivation to combine the system described by Lister with the system described by Das does not exist because

the combination would not result in the claimed present invention. As such, the Office has not established a prima case of obviousness regarding claim 1.

For the reasons cited above, Applicant believes that amended independent claim 1 is patentable over Das in view of Lister and is believed to be in condition for allowance.

With regard to claims 2-4, the Office states that it would have been obvious to form a reflective coating on the bi-prisms described by Lister so that the reflectors of the Lister system and the Das system could be removed. The Office states that it is well known that reflective coatings may be formed on optical elements of a laser system. The invention described by Lister, and with reference to Fig. 1, requires a separation to exist between the bi-prisms and the mirrors to permit a displacement of the light rays for the subsequent pass through the amplifier. As such, the application of a reflective coating on the plano surface of the bi-prisms as suggested by the Office would render the Lister invention inoperable. Additionally, Lister states at pg. 2, line 28-30 that the optical elements 12 and 13 are purely refractive. As such, the teaching of Lister does not provide for the incorporation of a reflective coating on the bi-prisms as suggested by the Office, but rather teaches away from such incorporation. Additionally, claims 2-4 are dependent upon claim 1, which has been shown to be allowable, and are therefore allowable as a matter of law.

Independent claim 5 is allowable for the reasons cited above with regard to claim 1. Claims 6 and 7 are dependent upon claim 5 and are therefore allowable as a matter of law.

Independent claim 8 is allowable for the reasons cited above with regard to claim 1. Claims 9-15 are dependent upon claim 8 and are therefore allowable as a matter of law.

Independent claim 16 is allowable for the reasons cited above with regard to claim 1. Claims 17-28 are dependent upon claim 16 and are therefore allowable as a matter of law.

Independent claim 29 is allowable for the reasons cited above with regard to claim 1. Claims 30-35 are dependent upon claim 29 and are therefore allowable as a matter of law.

If the Office is not fully persuaded as to the merits of Applicant's position, or if an Examiner's Amendment would place the pending claims in condition for allowance, a telephone call to the undersigned at (727) 507-8558 is requested.

Very respectfully,

SMITH & HOPEN

By: Molly Sauter

Dated: March 4, 2004

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CERTIFICATE OF FACSIMILE TRANSMISSION
(37 C.F.R. 1.8(a))

I HEREBY CERTIFY that this Amendment A is being transmitted by facsimile to the United States Patent and Trademark Office, Art Unit 2828, Attn.: James A. Menefee, (703) 872-9318 on March 4, 2004.

Dated: March 4, 2004

Shelley Butz